

PATENT

Attorney Docket No.: DN 03-021

REMARKS

Claims 1, 3, 4, 6, 7, 9-13, 15-20 and 22-34 are pending in this application.

Claims 1, 3, 4, 6, 7, 10-13, 15-17, 20, 22-28 and 31-34 are finally rejected in the Office Action.

Applicant thanks the Examiner for noting that claims 9, 18, 19, 29 and 30 contain allowable subject matter and that they would be allowable if rewritten in independent form. However, because the claims amended herein are allowable over the cited references, these claims were not rewritten in independent form.

In the accompanying Listing of Claims, claims 1, 6, 7, 9, 10 and 20 have been amended, claims 2-5, 8, 14-19 and 21-34 have been canceled without prejudice and new dependent claims 35-45 have been added. After the entry of the amendment, claims 1, 6, 7, 9, 10, 20 and 35-45 remain pending.

Claim Rejections Under 35 USC § 102:

Examiner rejects claims 1, 4, 11-13 and 17 as being anticipated by United States patent No. 4,383,045 to Nagle et al. ("Nagle"). Furthermore, Examiner rejects claims 1, 3, 6, 7, 10-13, 15 and 16 as being anticipated by published Japanese patent application No. JP 62-148377 (" '377 Application").

Specifically, Examiner states that the Nagle reference discloses a gunning composition comprising magnesia, sulfamic acid and calcium nitrate in which the raw magnesia contains 0.9 wt. % CaO. Examiner states that the 0.9 wt. % of CaO anticipates the range for calcia claimed in the pending claims 1 and 20, namely "about 1.0 percent . . . to about 8.0 percent by weight of total refractory composition." Examiner further contends that the disclosure of the '377 Application, which describes a spray refractory composition comprising aggregate, sulfamic acid and calcium hydroxide in which the calcium hydroxide is present between 0.1 percent to 5 percent by weight, anticipates the concentration ranges of calcium hydroxide recited in the pending claims.

In response, Applicant amended independent claims 1 and 20 to require "calcium hydroxide in concentration between greater than 5.0 percent to 8.0 percent by weight of total

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refractory composition" (emphasis added). This range of calcium hydroxide concentration is not taught or suggested by Nagle or the '377 Application.

First, the Nagle reference does not disclose provision of calcium hydroxide in the refractory composition at all. Secondly, although the '377 Application's disclosure teaches the provision of calcium hydroxide as a plasticizer in a magnesia-based refractory, it explicitly teaches away from the range of concentration required by the amended claims 1 and 20. The '377 Application discloses adding calcium hydroxide in concentration between 0.1 wt. % and 5 wt. %. (see page 9 of the translated copy of the '377 Application provided by the Examiner, lines 1-8).

Furthermore, the '377 Application explicitly states that "[a] quantity [of calcium hydroxide] exceeding 5 parts by weight is not desirable because it causes increase of the applied water content and increase of SiO₂ from clay, etc., as well as a decrease in adhesion strength, structural deterioration, etc., resulting from the combustion of the organic plasticizer." (*Id.*) In contrast, in the refractory composition of the present invention, calcium hydroxide is added in the amount greater than 5.0 wt. % and up to 8.0 wt. % for improved hot strength and improved overall durability. The improved characteristics achieved by the inventors with the claimed composition is completely unexpected from the teachings of the '377 Application. Therefore, the disclosure of the '377 Application can not anticipate the invention claimed in the amended claims 1 and 20.

Accordingly, the amended independent claims 1 and 20 are distinguishable over the cited references and are in allowable form. Withdrawal of the rejection and allowance of amended claims 1 and 20 are kindly requested.

Claims 6, 7, 9, 10, 11, 12 and 13 as presented in the Listing of Claims depend from amended claim 1 and the new claims 35-45 depend from amended claim 20. Because amended claims 1 and 20 are allowable over the cited references, the claims depending therefrom are also allowable over the cited references. Allowance of claims 6, 7, 9, 10, 11, 12, 13 and 35-45 is kindly requested.

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Claim Rejections Under 35 USC § 103:

Examiner rejects claims 20-22, 24-27 and 31-34 under 35 U.S.C. § 103(a) as being unpatentable over the '377 Application in view of the knowledge of one of ordinary skill in the art. These rejections are moot in view of the amendments submitted herein and the discussion presented above.

CONCLUSION


Based upon the amendment submitted herewith and the above remarks, Applicant believes that the present application is now in condition for allowance. Reconsideration of the present application and allowance are requested.

The amendments presented herein are fully supported by the disclosure as originally filed and no new matter has been added.

Should Examiner not agree with Applicants' position, a telephone interview is respectfully requested to discuss any remaining issues and to expedite the eventual allowance of the application.

Respectfully submitted,

Date: January 20, 2006


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Attachment: RCE Transmittal (in duplicate)